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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,992	08/16/2001	Yannick Nicolas	PF990061	2183

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EXAMINER	
TUCKER, WESLEY J	

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	09/831,992	NICOLAS ET AL.	
	Examiner	Art Unit	
	Wes Tucker	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3 and 6-8* is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 2nd, 2005 has been entered.

Response to Arguments

2. Applicants amendments filed December 2nd, 2005 have been entered and made of record.

3. Claims 1 and 3 have been amended. No claims have been canceled and Claims 1-11 are now pending.

4. Applicants amendments and arguments have been fully considered but are not found fully persuasive for at least the following reasons:

An after-final request for reconsideration was filed on August 11th 2005 and an advisory office action was filed on August 23rd 2005 in response to the after-final request addressing the arguments. It appears that the same basic arguments in scope are presented again by Applicant in response to the final office action with no consideration of the explanation presented by the Office in the advisory office action

filed August 23rd 2005. The test of the advisory action is presented below for the Applicants convenience:

Applicant argues that the reference of Davison does not disclose all of the limitations of the independent claims. Applicant focuses on the feature of the resolution map and selecting of a pixel depending on its resolution and on that of the pixels of other of the sequence matched with this pixel. Examiner submits that the cited passage of Davison referring to the shift or distance between pixels in steps S558-S560 interpretted broadly still reads o the applicants definition and disclosure of 3D resolution in the present applicaton. Davison discloses determining shift which is effectively seperation distance of points in 3D space which is effectively the resolution of the 3D image coordinates.

Further applicant is directed to a similar disclosure in Davison in column 21, lines 14-26. Davison discloses using grid squares of different sizes to determine density of points in the respective images to be matched. This sounds like exactly the Applicants definition of resolution on page 5, lines 14-21 of the specification. Applicant further argues that "Davison et al. neither disclose nor suggest matching of a pixel of a current image with a pixel of another image of the sequence, pixels relating to one and the same point of the 3D scene, by projecting the pixel of the current image onto the other image." Examiner points to column 23, lines 1-18 where Davison discloses the matching of points in the two images and forming a measurement matrix M to be used in forming the 3D model. Applicant further alleges that "Davison et al. are not concerned with the use of the 3D model and mathcing images to identify redundancy as

in the present claimed invention." Examiner submits that this is exactly Davison's goal (column 5, lines 47-51). Applicant's remarks with regard to the 103 rejections appear to further argue that Davison does not disclose the invention as claimed in the independent claims. Examiner submits that the reference of Davison applies and that the 103 rejections still apply.

The arguments now presented are addressed below.

In response to the Applicants remarks with regard to the elements being "arranged as required by the claim", Examiner would first like to point out that what is claimed in claim 1 is a method <u>comprising</u> a certain number of steps. Therefore as broadly and reasonably interpreted the cited method of Davison need only read on the steps of the method as claimed. Claim 1 has been amended and now changes the scope of the invention. Below is an explanation of why the claims still read on the Reference of Davison as reasonably broadly interpreted.

With regard to claim 1, Davison discloses a method for constructing a 3D scene model by analyzing image sequences, each image corresponding to a viewpoint defined by its position and its orientation (Fig. 29A and Fig.3 steps S10-S14), comprising the following steps:

Calculating, for each image, a depth map corresponding to the depth, in 3D space, of pixels of the image (column 7, lines 34-45). Here Davison disclose that after an initial matching step, the camera orientation and the positions are determined with

regard to the matched points in relative form. This information is interpreted as depth maps because the points in the image are determined relative to their capture viewpoints. Furthermore it is a common practice that depth information be found for points or pixels through the process of stereo image correspondence using two or more images to determine depth. The way in which the depth maps for each image are determined are not disclose in the present specification and is therefore not enabled. On page 4, line 20 of the specification it is stated "An ad hoc processing provides for each image, a depth map as well as the position and orientation of the corresponding viewpoint." On page 5, lines 3-6 it is stated that "Available at system input, for ach image sequence, is a depth map as well as the position and the orientation of the corresponding viewpoint." There is nothing in the disclosure enabling the claimed feature of "calculating for each image, a depth map corresponding to the depth, in 3D space of pixels of the image." It should have been explained how this is done for <u>each image</u> if this is an important part of the operation of the invention. A 112 first paragraph rejection is accordingly applied below.

Davison further discloses calculating, for each image, a resolution map corresponding to the 3D resolution of said pixels of the image from the depth map (column 7, lines 40-50). Davison discloses that further features are matched once the depth information is found and using the pre-matched points. A resolution map interpreted reasonably broadly is simply an image having a resolution. The resolution of the points is interpreted as being necessary to matching points or features. There must be a certain resolution in working with the images in terms of separation and how many

pixels or data points are needed per area/volume in order to perform matching. That is the point shown in Davison at figures 45A-47. There must be a resolution determination in order to match the points and represent points in 3D space and the figures illustrate that.

Davison further discloses matching a pixel of a current image with a pixel of another image of the sequence, said pixels relating to one and the same point of the 3D scene, by projecting the pixel of the current image onto the other image (Fig. 3, step S8, column 7, lines 39-45 and column 10, lines 53-61, column 18, lines 34-59 and/or column 33, lines 38-53 and/or column 41, lines 40-55 and column 42, lines 31-54).

Davison further discloses selecting a pixel of the current image depending on its resolution and on that of the pixels of other images of the sequence matched with said pixel (Notice steps 558-560 of Davidson et al. Fig. 44a. Here, discarding points of excessive inter-point distance (i.e. low 3D resolution), results in the selection of a set of points, and correspondingly a set of pixels, used in the subsequent construction).

Davison further discloses constructing a 3D model from the selected pixels (Fig. 3, steps S12-S14).

Now it should be clear from the explanation of Davison that the substance of claim 1 is disclosed. The response of the 103 rejections relying on Davison as the primary reference should be made clear in view of the above discussion. Therefore the rejections of claims 1, 2, 4, 5 and 9-11 are maintained.

Claim Rejections - 35 USC § 112

5. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 claims the step of:

Calculating for each image a depth map corresponding to the depth, in 3D space, of pixels of the image.

However it is not explained as to how those depth maps are calculated in the specification or that they are calculated at all.

On page 4, line 20 of the specification in the section entitled "Brief Description About the Drawings", it is stated "An ad hoc processing provides for each image, a depth map as well as the position and orientation of the corresponding viewpoint." On page 5, lines 3-6 it is stated that "Available at system input, for each image sequence, is a depth map as well as the position and the orientation of the corresponding viewpoint." It is unclear as to whether the calculating depth maps for each image is within the scope of the invention. There is nothing in the disclosure enabling the claimed feature of "calculating for each image, a depth map corresponding to the depth, in 3D space of pixels of the image." It should be explained how this is done for <u>each image</u> if this is part of the operation of the invention.

It is a common practice that depth information be found for points or pixels through the process of stereo image correspondence using two or more images to determine depth. The way in which the depth maps for each image are calculated is not disclosed in the present specification and is therefore not enabled.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 9 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Davidson et al.

With regard to claim 1, Davison discloses a method for constructing a 3D scene model by analyzing image sequences, each image corresponding to a viewpoint defined by its position and its orientation (Fig. 29A and Fig.3 steps S10-S14), comprising the following steps:

Calculating, for each image, a depth map corresponding to the depth, in 3D space, of pixels of the image (column 7, lines 34-45). Here Davison disclose that after an initial matching step, the camera orientation and the positions are determined with regard to the matched points in relative form. This information is interpreted as depth maps because the points in the image are determined relative to their capture viewpoints.

Davison further discloses calculating, for each image, a resolution map corresponding to the 3D resolution of said pixels of the image from the depth map (column 7, lines 40-50). Davison discloses that further features are matched once the depth information is found and using the pre-matched points. The resolution of the points is interpreted as being necessary to matching points or features. There must be a certain resolution in working with the images in terms of separation and how many pixels or data points are needed per area/volume in order to perform matching. That is the point shown in Davison at figures 45A-47. There must be a resolution determination in order to match the points and represent points in 3D space and the figures illustrate that.

Davison further discloses matching a pixel of a current image with a pixel of another image of the sequence, said pixels relating to one and the same point of the 3D scene, by projecting the pixel of the current image onto the other image (Fig. 3, step S8, column 7, lines 39-45 and column 10, lines 53-61, column 18, lines 34-59 and/or column 33, lines 38-53 and/or column 41, lines 40-55 and column 42, lines 31-54).

Davison further discloses selecting a pixel of the current image depending on its resolution and on that of the pixels of other images of the sequence matched with said pixel (Notice steps 558-560 of Davidson et al. Fig. 44a. Here, discarding points of excessive inter-point distance (i.e. low 3D resolution), results in the selection of a set of points, and correspondingly a set of pixels, used in the subsequent construction).

Davison further discloses constructing a 3D model from the selected pixels (Fig. 3, steps S12-S14).

Now it should be clear from the explanation of Davison that the substance of claim 1 is disclosed. The response of the 103 rejections relying on Davison as the primary reference should be made clear in view of the above discussion. Therefore the rejections of claims 1, 2, 4, 5 and 9-11 are maintained.

The following is in regard to Claim 9. As shown above, Davidson et al. disclose a 3D model construction method that sufficiently conforms to the method of claim 1. In the method of Davidson et al., the pixel of the other image is the pixel closest to the projection point on this other image. See, for example, Davidson et al. Fig. 35. The 3D model construction method of Davidson et al. thus sufficiently conforms to the method proposed by the Applicant in claim 9. Therefore, the teachings of Davidson et al. anticipate the method of claim 9.

The following is in regard to Claim 11. As shown above, Davidson et al. disclose a 3D model construction method that sufficiently conforms to the method of claim 1.

Davidson et al. suggest the usage of the derived model in virtual reality applications (e.g. ones that employ VRML – Davidson et al. column 6, lines 3-5). The following aspects of claim 11 are inherent to virtual reality applications:

(11.a□.) Creating images as a function of the movement of the viewpoint.

(11.b□) These images are of different viewpoints of a 3D model.

Therefore, a virtual-reality application utilizing a model(s) obtained according to the method of Davidson et al., would constitute a method of navigation in a 3D scene consisting of:

(11.a.) Creating images as a function of the movement of the viewpoint.

(11.b) These images are of different viewpoints of the 3D model(s) derived according to Claim 1.

This is clearly in accordance with the method proposed in claim 11.

Rejections Under 35 U.S.C. § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davidson et al., in view of Azarbayejani et al. (U.S. Patent 5,511,153).

The following is in regard to Claim 2. As shown above, Davidson et al. disclose a 3D model construction method that sufficiently conforms to the method of claim 1. Clearly, the points selected according to the method of Davidson et al. constitute one or more regions. Furthermore, as stated above, the method of Davidson et al. selects pixels depending on the resolution (see the discussion relating to step (1.d) above). However, Davidson et al. do not expressly show or suggest:

(2.a.) Calculation and allocation of weights to the pixels of the image depending on:

1. whether or not they belong to the regions
2. on the geometrical characteristics of the regions to which they belong in the image.

(2.b.) A selection of the pixels performed depending on the weight values assigned to the pixels.

Azarbayejani et al.[1], on the other hand, disclose a method for constructing a 3D scene model by analyzing image sequences, wherein:

(2.a□.) Weights (e.g. $1/(1+Z_C\beta)$ in Azarbayejani et al. equation (2) or □ in Azarbayejani et al. equation (3)) are calculated and allocated to the

[1] Note that the various equations of Azarbayejani et al. will be referred to as (1), (2), (3) and so on, beginning with the equation listed in Azarbayejani et al. column 2, line 40.

pixels of the image. See Azarbayejani et al. equations (2) and (3), for example. The weights □, □□ represent the geometric characteristics or structure of an image feature (i.e. region) to which the pixels belong (Azarbayejani et al. column 6, lines 5-13) and are indicative of whether or not they belong to the feature (Azarbayejani et al. column 5, lines 54-60).

(2.b□.) A selection of the pixels performed depending on the weight values assigned to the pixels (Azarbayejani et al. column 10, lines 52-61).

The teachings of Davidson et al. and Azarbayejani et al. are combinable because they are analogous art. Specifically, the teachings of both are directed to 3D model generation from image sequences. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the applicant's claimed invention, to perform feature tracking (or matching, using Davidson et al.'s nomenclature) in the method of Davidson et al. according to steps (2.a□.)-(2.b□.) of Azarbayejani et al. One would have been motivated to do so because of the accuracy of Azarbayejani et al.'s method. Combining the teachings of Davidson et al. and Azarbayejani et al. yields a method, in accordance with claim 1, such that:

(2.a.) Calculation and allocation of weights to the pixels of the image depending on:

1. whether or not they belong to the regions
2. on the geometrical characteristics of the regions to which they belong in the image.

(2.b.) A selection of the pixels performed depending on the resolution and weight values assigned to the pixels.

Therefore, such a method would conform to the method proposed in claim 2.

11. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidson et al., in view of McAllister et al. ("Real-Time Rendering Techniques of Real World Environments").

The following is in regard to Claim 4. As shown above, Davidson et al. disclose a 3D model construction method that sufficiently conforms to the method of claim 1. Davidson et al., however, do not expressly show or suggest a partitioning of the images of the sequence characterized by:

(4.a.) Identifying, for a current image, the images whose corresponding viewpoints have an observation field possessing an intersection with the observation field relating to the current image.

(4.b.) Forming a list of images associated therewith.

(4.c.) The list contains images of the sequence that will be used in the matching of the pixels of the current image.

McAllister et al. disclose an image-based modeling method that generates a 3D model of an object from a multitude of 2D images (McAllister et al. Abstract). The method entails a partitioning of the images (i.e. into *tiles*) of the sequence (McAllister et al. Section 4.5, paragraph 1) that includes the following:

(4.b.) Forming a list of images associated therewith (McAllister et al. Section 4.6, paragraph 2).

(4.c.) The list contains images of the sequence that will be used in the matching of the pixels of the current image (McAllister et al. Section 4.6, paragraph 2, in particular, lines 4-7).

Note that:

(4.a.) Identifying, for a current image, the images whose corresponding viewpoints have an observation field (i.e. *view frustum* – McAllister et al. Section 4.5 paragraph 1, line 4) possessing an intersection with the observation field relating to the current image.

is inherent to the view-frustum culling of McAllister's et al.'s method. Those view-frustums that are culled correspond to images that sample surfaces which are disjoint from the surfaces imaged by the retained view-frustums. One can conclude from this that the retained and culled view-frustums are divergent. Thus, the view-frustum culling represents an implicit identification of intersecting view-frustums (i.e. retained view-frustums). That is, the retained view-frustums are those that intersect.

The teachings of McAllister et al. and Davidson et al. are combinable because they are analogous art. Specifically, the teachings of both are directed toward the construction of 3D models of scenes from a collection of 2D images. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the applicant's claimed invention, to integrate the partitioning scheme of McAllister et al. into the method of Davidson et al. The motivation to do so would have been to and eliminate

redundant views and imagery from the data set (McAllister et al. Section 4.5, paragraph 1, sentence 3), thereby, improving rendering efficiency (McAllister et al. Section 4.6, last sentence) and storage overhead. Combining the teachings of McAllister et al. and Davidson et al., in this manner, yields a 3D modeling method that conforms substantially to that of claim 4.

The following is in regard to Claim 5. As just shown, the teachings of McAllister et al. and Davidson et al. can be combined to yield a method that adequately satisfies the limitations of claim 4. Furthermore, the partitioning of the images of the sequence, according to the teachings of McAllister, is performed by removing, from the list associated with an image, the images which possess too few pixels corresponding to those of the current image (McAllister et al. Section 4.6, paragraph 2). Therefore, combining the teachings of McAllister et al. and Davidson et al., in the manner discussed above, yields a 3D modeling method that conforms substantially to that of claim 5.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davidson et al., in view of La Roux et al. ("An Overview of Moving Object Segmentation in Video Images", IEEE, 1991).

The following is in regard to Claim 10. As shown above, Davidson et al. disclose a 3D model construction method that sufficiently conforms to the method of claim 1. As mentioned above, Davidson et al. attempt to find pixels in the sequence of images that

correspond to the same (or approximately the same) 3D point of the imaged scene or object. The following problems associated with deriving stereo correspondences between images of moving objects are well known. Besides potentially inducing undesirable motion blur in the captured images, the movement of an object makes the derivation of correspondences between images of an image sequence extremely difficult or impossible. Though it would be apparent to one of ordinary skill in the art, the method of Davidson et al. does not provide a means to remedy this potential problem.

Le Roux, et al. describe several methods to differentiate and extract regions corresponding to moving objects in video images (Le Roux et al. Introduction).

The teachings of Le Roux et al. and Davidson et al. are combinable because they are analogous art. In particular, the teachings of both Le Roux et al. and Davidson et al. are directed toward the processing of a sequence of images. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the applicant's claimed invention, to use moving object segmentation, according to any of the various techniques discussed by Le Roux et al., to extract regions corresponding to moving objects from the collection of images used by the method of Davidson et al. to generate a 3D model. The motivation for doing so would have been to eliminate regions corresponding to moving objects from the collection of images. By eliminating these regions, correspondences, and hence a 3D model, can be derived for regions of these images that do not move. Combining the teachings of Le Roux et al. and Davidson et al., in this manner, yields a 3D modeling method that conforms substantially to that of claim 10.

Allowable Subject Matter

13. Claims 3 and subsequent dependent claims 6, 7 and 8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The following is in regard to Claim 3. As mentioned above with respect to claims 1-2 , the method obtained by combining the teachings of Davidson et al. and Azarbayejani et al., involves assigning both a weight and resolution to pixels of the current image. Though one could arbitrarily designate these values as collectively constituting a *relevance value*, this does <u>not</u> follow directly or impliedly from the teachings of Davidson et al. or Azarbayejani et al. or, for that matter, any encountered prior art methods. Despite this, it would be apparent, if one were to devise such a reference value, that in order for it to be meaningful – or, more specifically, for it to denote the relevance of pixels – within the context of the method obtained by combining the teachings of Davidson et al. and Azarbayejani et al. – the relevance value should be directly proportional to the resolution. This follows from the teachings of Davidson et al. (Davidson et al. Fig. 44a, steps S558-S560). Taking this into account, selected pixels, which according to Davidson et al. have highest 3D resolution (pixels with SHIFT □10% of object size), would, in turn, have the highest relevance value among all image pixels. Providing an indication (e.g. a table) indicating which pixels are selected would be inherent to the process of selection. Such a collection can be considered a *mask.*

Though these latter aspects of claim 3 follow implicitly from a meaningful notion of *relevance value* within the context of the method above, it cannot be said that these aspects would be readily apparent from the teachings of Davidson et al. or Azarbayejani et al. or any encountered prior art methods. In this manner, the subject matter of claim 3 is unique and non-obvious with respect to the encountered prior art methods.

The following is in regard to Claims 6-8. In and of themselves, the substantive limitations set forth in claims 6-8 introduce nothing over similar prior art methods. However, by virtue of their dependence on allowable claim 3 (see below), these claims, in turn, propose allowable subject matter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 571-272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wes Tucker

1-8-05

VIKRAM BALI
PRIMARY EXAMINER